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(54) **OXYGEN FIRED STEAM GENERATOR**

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See application file for complete search history.

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(57) **ABSTRACT**

In a method for operating a steam generator, a transport reactor is provided. Only a substantially pure oxygen feed stream is introduced into the transport reactor in an amount sufficient to maintain the transport reactor at or above a specific system load. The specific load is the system load when only the substantially pure oxygen feed stream is provided to the transport reactor at a minimum flow velocity for operating the transport reactor. A fuel is combusted in the presence of the substantially pure oxygen feed stream to produce a flue gas, which contains solid material. The solid material is separated from the flue gas and passed to a heat exchanger. The heat exchange may be one of a moving bed heat exchanger or a fluidized bed heat exchanger. The solid material is directed to the transport reactor to contribute to the combustion process.

20 Claims, 2 Drawing Sheets

